

# SOP Transport of Liquid Nitrogen and Dry Ice in Elevators

## BASICS

NEVER transport liquid nitrogen (LN<sub>2</sub>) in any quantity as well as dry ice (> 5 kg) in the elevator when accompanied by persons.

## HAZARDS



Liquid nitrogen (LN<sub>2</sub>) and dry ice represent an **asphyxiation risk**.

Evaporation of 1 liter of LN<sub>2</sub> produces 700 liters (0.7 m<sup>3</sup>) of gas. Nitrogen boils under atmospheric pressure at a temperature of -196 °C.

1 kg of dry ice produces 500 liters (0.5 m<sup>3</sup>) of CO<sub>2</sub> gas. Dry ice sublimates relatively slowly under atmospheric pressure.



Gaseous nitrogen and CO<sub>2</sub> are heavier than air and displace oxygen from enclosed spaces.

LN<sub>2</sub> and dry ice also can cause severe frostbite.

## PROTECTIVE MEASURES AND RULES OF CONDUCT



For transporting smaller containers, use the staircase.

If no goods elevator is available and transportation via staircase is not possible, proceed as follows:

The transport may be carried out with a passenger elevator, whereby it must be ensured that nobody uses the elevator at the same time.

In order to meet this requirement, the transport must always be carried out **by two persons**.

One of them puts the container in the elevator and places a warning sign "NO ENTRY" between the container and the elevator door. The elevator is then sent un-manned to the destination floor.

The other one is waiting on the destination floor and takes the container and the warning sign upon arrival out of the elevator.

## PREREQUISITES FOR THE TRANSPORT

Only instructed personnel should transport liquid nitrogen and dry ice (>5 kg). Contact your supervisor or the [local safety officers](#).

Compressed gas containers have an overpressure valve and are periodically checked by a certified inspection body.

Mobile containers must be tilt-proof.

Never use household thermos jugs.

Warning signs can be borrowed from the [house staff](#) and must be returned immediately after transport.